

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-9 and 11-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 1 and 5 recite the limitation, "being free of compound isocyanate". There is no support for this in the specification.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-9 and 11-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1 and 5 recite the limitation, "being free of compound isocyanate". It is unclear to what "compound isocyanate" refers. While it is assumed "compound isocyanate" refers to any reaction product of isocyanate, this is unclear and contrary to the definition of isocyanate.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 and 11-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Ou et al. (US 6,558,748) as evidenced by Rubinate 1840 data sheet.

Considering Claims 1-4 and 11-12: Ou et al. teaches polyurea coatings (4:30-35) comprising Rubinate 1840 (6:35-40). Rubinate 1840, as shown from the Rubinate 1840 data sheet, is a 50:50 mix of 4,4'-diphenylmethane diisocyanate (CAS 101-68-8) and polymeric MDI (CAS 9016-87-9). As the claims are product by process claims, the process steps are irrelevant as long as the product is the same. In this case, the claims only require the claimed isocyanate hardener and an isocyanate-reactive ingredient. Additionally, since any solvent will evaporate after application to the substrate, presence and amount of solvent is not relevant to patentability.

Claims 1-3, 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Hovestadt et al. (US 5,453,460).

Considering Claims 1-2: Hovestadt et al. teaches a process for reusing the overspray obtained when spraying water dilutable two-component polyurethane coating compositions by collecting the overspray, reacting the overspray with compounds that are more reactive with isocyanate groups than both water and the compounds

containing isocyanate reactive groups, and using the solution or dispersion in a coating composition (Abs). The coating residue can be reconcentrated (extracted) by low pressure evaporation (2:35-45). The recovered overspray can be used in two-component polyurethane coating compositions, with addition of a polyisocyanate as hardener (7:35-40). The dispersion was applied as a two-component polyurethane coating composition (7:35-40). Hovestadt teaches that the coating compositions are made before it has become completely unusable due to the gradually progressing cross-linking reaction (1:60-65), which implies that the coating is substantially free of cross-linking on its own and substantially free of large amounts of gelled paint. Additionally, it must be viscous in order to be applied as a coating.

With regards to the limitation that the paint waste stream be resultant from spray equipment cleaning with wash solvent, as the claim is drawn to a product, the process is irrelevant, so long as it results in the same claimed compound. Furthermore, no isocyanate is present at the point at which the overspray has been reacted with amine.

Considering Claim 3: Hovestadt et al. teaches the isocyanate being based on hexamethylene diisocyanate (7:1-5).

Considering Claim 11: Hovestadt et al. teaches adjusting the spray viscosity of the coating by adding water (diluting) (Abs).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 4 rejected under 35 U.S.C. 103(a) as being unpatentable over Hovestadt et al. (US 5,453,460), as applied to claims 1-3 above, and further in view of Moriarty et al. (US 6,692,670), as evidenced by Rubinate 1840 data sheet.

Considering Claim 4: Hovestadt et al. teaches the basic claimed coating as set forth above.

Hovestadt does not teach the claimed MDI. However, Moriarty et al. teaches polymeric MDI comprising less than 48% diisocyanate (MDI) (3:30-35), specifically Rubinate 1840 (3:15-17). Rubinate 1840, as shown from the Rubinate 1840 data sheet, is a 50:50 mix of 4,4'-diphenylmethane diisocyanate (CAS 101-68-8) and polymeric MDI (CAS 9016-87-9). Hovestadt and Moriarty are analogous art because they are from the same field of endeavor, namely isocyanate binders. At the time of the invention a person of ordinary skill in the art would have found it obvious to have used the polymeric MDI, as taught by Moriarty, in the invention of Hovestadt, as an equivalent alternative isocyanate.

Claims 5-9 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hovestadt et al. (US 5,453,460) in view of Patzelt et al. (US 5,766,370) and applicant's admission of prior art.

Considering Claims 5 and 14: Hovestadt et al. teaches a process for reusing the overspray obtained when spraying water dilutable two-component polyurethane coating

compositions by collecting the overspray, reacting the overspray with compounds that are more reactive with isocyanate groups than both water and the compounds containing isocyanate reactive groups, and using the solution or dispersion in a coating composition (Abs). The coating residue can be reconcentrated (extracted) by low pressure evaporation (2:35-45). The recovered overspray can be diluted (8:25-30) and used in two-component polyurethane coating compositions, with addition of a polyisocyanate as hardener (reactive to epoxide) (7:35-40). The dispersion was applied as a two-component polyurethane coating composition (7:35-40). Hovestadt teaches that the coating compositions are made before it has become completely unusable due to the gradually progressing cross-linking reaction (1:60-65), which implies that the coating is substantially free of cross-linking on its own and substantially free of large amounts of gelled paint. Additionally, it must be viscous in order to be applied as a coating and no isocyanate is present at the point at which the overspray has been reacted with amine.

Hovestadt does not teach the paint waste stream being resultant from spray equipment cleaning with wash solvent. However, applicant has admitted that, “Each trade typically uses a wash solvent to clean equipment” (¶0015), and that, “When spray equipment is cleaned of paint with wash solvents, a waste stream consisting of paint and wash solvent is created” (¶0002). At the time of the invention a person of ordinary skill in the art would have found it obvious to have used a waste stream resultant from spray equipment cleaning with wash solvent, in the invention of Hovestadt, as an equivalent alternative waste stream. Furthermore, the limitation “resultant from spray

cleaning equipment" is a product-by-process limitation within the confines of a larger process claim and therefore the prior art need not teach the claimed process, just the product.

Hovestadt does not teach placing the paint waste stream in a still, separating the solvent, and then extracting the paint residue. However, Patzelt et al. teaches a paint overspray treatment by feeding a spent emulsion into a reaction vessel, the reaction vessel operating under a vacuum and at a temperature sufficient to generate a volatilized organic solvent component (still), and removing residual material remaining in the reaction vessel after volatilizing the organic solvent (4:15-35). Hovestadt and Patzelt are analogous art because they are from the same field of endeavor, namely paint overspray recovery. At the time of the invention a person of ordinary skill in the art would have found it obvious to have extracted the paint residue, as taught by Patzelt, in the invention of Hovestadt, in order to efficiently remove excess solvent from the paint residue.

Considering Claims 6-7: Hovestadt et al. teaches reacting the isocyanate in an equivalent (stoichiometric) amount to hydroxyl groups (7:55-60).

Considering Claims 8-9 and 13: Hovestadt does not teach purifying the residue according to specific gravity before combining with hardening agents and pigments. However, applicant has admitted that it is well known in the art that upon standing, paints will settle out with the heavy pigments falling to the bottom and the clear resin solution sitting on top and that this process can be accelerated using an industrial decanter or centrifuge (high speed rotation) (4:15-25 of instant specification). At the time

of the invention a person of ordinary skill in the art would have found it obvious to have removed pigments according to specific gravity, as taught by applicant, followed by addition of the curing agent and new pigments, in order to make a coating of a different color, thereby adapting the claimed method to multiple scenarios.

Claim 12 rejected under 35 U.S.C. 103(a) as being unpatentable over Hovestadt et al. (US 5,453,460), as applied to claim 1 above.

Considering Claim 12: Hovestadt et al. teaches the basic claimed process as set forth above. In addition, Hovestadt et al. teaches adjusting the spray viscosity of the coating by adding water (diluting) (Abs).

Hovestadt does not teach the claimed amount of thinning solvent. However, the experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. MPEP 2144.05. The amount of diluent can be adjusted to obtain a coating of the desired viscosity.

Response to Arguments

Applicant's arguments filed 2/2/10 have been fully considered but they are not persuasive.

In response to applicant's arguments regarding the 112 rejections, while it is not necessary that support be word for word, there is nothing in the specification that would lead the skilled artisan to remove all isocyanate groups from the paint waste stream.

The specification only teaches that the paint waste stream be free of large amounts of gelled paint (¶0015). There is no mention whatsoever that the paint waste stream be free from isocyanates. Hovestadt makes sure that the waste stream is free of large amounts of gelled paint by blocking the isocyanate groups from further reaction, which is within the scope of the instant invention. Furthermore, the claims are not drawn to clear over basecoat systems, but can be drawn to any paint system.

In response to applicant's arguments regarding claims 1-3 and 11, as the waste is reacted with an amine, there will be no isocyanate groups present, compound or otherwise. There will, however, be urea groups. Additionally, it is noted that claim 1 is a product by process claim and as such, the only required limitations are paint residue and hardener.

In response to applicant's arguments regarding claim 4, they have been substantially responded to above.

In response to applicant's arguments regarding claims 5-9 and 13-14, Hovestadt teaches that, "*If* the compounds containing isocyanate reactive groups...are compounds which are split off again at elevated temperatures...", which implies that not all of the isocyanate reactive compounds will split off at elevated temperature. Furthermore, the Examiner did not admit to the effect, but said, "while the overspray of Hovestadt would be a solid if it was directly distilled, Hovestadt teaches reacting the overspray with compounds which are reactive with isocyanate groups (Abs), thereby avoiding hardening the dispersion". Additionally, while Hovestadt teaches using low pressure

evaporation, there is a reasonable expectation of success that standard heat-assisted distillation will be effective.

In response to applicant's arguments regarding claim 12, they have been substantially responded to above.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NOAH FRANK whose telephone number is (571)270-3667. The examiner can normally be reached on M-F 9-5 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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